



U.S. Department of Agriculture
Forest Service
State and Private Forestry
Southeastern Area

FOREST PEST MANAGEMENT

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AERIAL DETECTION SURVEY OF FOREST INSECT
AND DISEASE ACTIVITY, TENNESSEE VALLEY
AUTHORITY, LAND BETWEEN THE LAKES, KENTUCKY

LAND OWNERSHIP OR SURVEY AREA: TVA, Land Between the Lakes

STATE: Kentucky

AREA WITHIN SURVEY BOUNDARY: 171,123 acres

DATE: May 7, 1981

PERCENT COVERAGE: 100%

AIRCRAFT: Cessna 182

CREW: William Carothers, Tom Buckner, Beth Welbaum

REPORT PREPARED BY: William Carothers

SURVEY OBJECTIVES

To detect and accurately map areas of forest insect and or disease activity within the boundaries of the Land Between the Lakes.

INTRODUCTION

During early May, information provided by Mr. Bob Drexler of the TVA to FPM personnel in the Asheville Field Office indicated that a rapidly expanding population of hardwood defoliators was present on the TVA area, Land Between the Lakes. The Aerial Survey Team was contacted and an aerial detection survey to determine acreage of defoliation was planned. The week of May 4-8 was selected as the optimum time for the survey based on information obtained from TVA personnel.

METHODS & MATERIALS

Standard aerial sketchmapping techniques were used to delineate areas of heavy, moderate and light defoliation. Flightlines one mile apart were flown 1000 feet above the ground. Three observers were used and by limiting their viewing strip to .5 mile a 100% survey was completed. A composite map was constructed based on the degree and location of defoliation viewed by each of the three observers.

RESULTS & DISCUSSION

Results of the aerial survey indicate that approximately 143,909 acres of defoliation were observed. This figure represents approx-

imately 84% of the land area within the boundaries of the Land Between the Lakes. Areas of light, moderate and heavy defoliation were scattered throughout (refer to map). Table 1 represents the acres of defoliation in each class.

Table 1 - Acres of Hardwood Defoliation by Defoliation Class

Defoliation Class	# of Acres
Light (25%-50%)	58,436
Moderate (51%-75%)	45,821
Heavy (76%-100%)	39,652

Ground checks of accessible areas revealed the presence of linden looper (Erannis tiliaria Harr.), spring cankerworm (Paleacrita vernata (Peck)), oak leaf-tier (Croesia semipurpurana (Kearfott)), and oak leafroller (Archips semifervans (Walker)) larvae. At the time of the ground checks linden looper was the predominant species present in this defoliation complex. Various species of trees including oak, hickory, elm and hackberry were defoliated in various degrees.

In addition to the high populations of the causal insects, high populations of parasites and predators were encountered. Calosoma beetles (Calosoma sp.), lady beetle larvae, and several species of parasitic wasps were very abundant.

CONCLUSIONS

At the present, high population levels of hardwood defoliators are present. While the parasite and predator populations are also high, these insects have not been capable of preventing large amounts of defoliation.

Field surveillance by the TVA personnel should continue to promote early detection of potential insect and disease problems.

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